Applicant: Michael Peter Cooke
Serial No.: 10/802,275
Group Art Unit: 3752

IN THE CLAIMS:

Please amend the following claims having the same number as indicated:

1-25. **(Cancelled).**

26. **(Currently Amended).** A fuel injector comprising:

a valve member which is engageable with a valve seating to control fuel delivery from the injector;

an [~~hydraulic~~] amplifier arrangement having a piston member and a control chamber, the amplifier arrangement being hydraulically coupled to the valve member via the [a] piston member and [a] the control chamber[;];

a mechanical coupler for providing mechanical coupling between the piston member and the valve needle; and,

an actuator arrangement coupled to the piston member, wherein the [~~hydraulic~~] amplifier arrangement, the mechanical coupler, and the actuator arrangement are adapted to apply an initial retracting force to the piston member to move the valve member away from the valve seating and to apply a second retracting force to the piston member thereafter; [~~and the hydraulic amplifier including a mechanical coupler for coupling~~] the valve member and the piston member being coupled together by the mechanical coupler only during application of the initial retracting force so that they are decoupled from one another during application of the second retracting force.

27. **(Original).** A fuel injector, as set forth in claim 26, wherein the second retracting force is less than the initial retracting force.

28. **(Withdrawn).** A method for operating a fuel injector for delivering fuel from the injector having a valve member which is engageable with a valve seating to control fuel delivery from the injector; a hydraulic amplifier arrangement coupled to the valve member via a piston member and a control chamber, and an actuator arrangement coupled to the piston member, the method comprising the steps of:

applying an initial retracting force to the piston member to move the valve member away from the valve seating;

applying a second retracting force to the piston member after initial movement of the valve member,

mechanically coupling the valve member and the piston member during application of the initial retracting force and decoupling from one another during application of the second retracting force; and

hydraulically moving the valve member during application of the second retracting force.

29. **(Currently Amended).** A fuel injector comprising:

a valve seat,

a valve member engageable with said valve seat to control fuel flow,

an actuator-hydraulic amplifier combination including a piston member, the piston member hydraulically coupled to the valve member and being adapted to retract [~~a piston member for retracting~~] said valve member out of engagement with said valve seat, and

a mechanical coupler for moving said valve member and said piston member together during the initial retracting movement of said valve member out of

engagement with said valve seat and for allowing said valve member to move relative to said piston member after the initial retracting movement of said valve member[, [~~and~~] the] [an] actuator-hydraulic amplifier combination [~~for~~] applying a force through said mechanical coupler during said initial retracting movement and [~~for~~] hydraulically moving said valve member relative to said piston member after said initial retracting movement.

30. **(Previously Presented).** A fuel injector as set forth in claim 29 wherein said actuator-hydraulic amplifier combination includes an actuator for moving said piston member through said mechanical coupler and a hydraulic circuit for amplifying movement of said actuator to hydraulically move said valve member in proportion to movement of said actuator after said initial retracting movement.

31. **(Withdrawn).** A method of operating a fuel injector comprising the steps of:

applying a mechanical movement to a valve member for moving the valve member from engagement with a valve seat,

applying hydraulic pressure to the valve member in response to initial movement of the valve member from the valve seat,

amplifying the mechanical movement hydraulically and moving the valve member relative to the mechanical movement and proportionately to the mechanical movement.

32. (New). A fuel injector, as set forth in claim 26, wherein the mechanical coupler includes a spring.

33. (New). A fuel injector, as set forth in claim 29, wherein the mechanical coupler includes a spring.

34. (New). A fuel injector, comprising:

a nozzle body forming a blind bore;

a valve needle moveable within the blind bore and being engageable with a blind end of the blind bore to control fuel delivery through the fuel injector; and,

a piston member coupled to an actuator and forming a control chamber; and,

a mechanical coupler for providing mechanical coupling between the piston member and the valve needle, the mechanical coupler, the piston member and the control chamber applying an initial retracting force and a second retracting force to the valve member in response to actuation of the actuator, the initial retracting force disengaging the valve needle from and away from the blind end of the blind bore, the second retracting force being applied thereafter, the piston member and the valve needle only being mechanically coupled by the mechanical coupler wile the initial retracting force is being applied, the piston member and valve needle being hydraulically coupled while the second retracting force is being applied.